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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,921	10/31/2003	Donnie K. Reinhard	MSU 4.1-655	2975
21036	7590	12/06/2005	EXAMINER	
MCLEOD & MOYNE, P.C. 2190 COMMONS PARKWAY OKEMOS, MI 48864			CHEN, BRET P	
			ART UNIT	PAPER NUMBER

1762

DATE MAILED: 12/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/698,921

Applicant(s)

REINHARD ET AL.

Examiner

B. Chen

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 September 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 16-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

Claims 1-19 are pending in this application.

#### ***Election/Restrictions***

Applicant's election without traverse of claims 1-15 in the reply filed on 9/28/05 is acknowledged.

Claims 16-19 have been withdrawn from consideration as being directed to a nonelected invention.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vaitkus et al. (5,587,013).** Vaitkus discloses a method of forming a thin diamond film having a thickness of less than 10 micron on a silicon substrate by chemical vapor deposition (col.4 lines 15-25) followed by application of a paraffin (col.6 lines 64-65). The substrate subsequently removed with a solution of HG and HNO<sub>3</sub> (col.7 lines 1-2). However, the reference fails to specifically teach of removing the DTF from the chemical solution and placing and floating the DTF into a non-etching solution.

Art Unit: 1762

It is noted that the reference teaches the difficulty of picking up a thin diamond film less than 5 microns (col.3 lines 14-16). But the reference does teach of making measurements by floating the diamond film (col.2 lines 5-7). One skilled in the art after reading Vaitkus would realize that physically picking up a thin diamond film is not feasible to make measurements and thus must rely on floating the diamond film as noted above. Hence, it would have been obvious to the skilled artisan to float the diamond film onto a non-etching solution in Vaitkus' process with the expressed purpose of measuring the film characteristics without damaging the thin film.

The limitations of claims 2-15 have been addressed above.

**Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikegaya et al. (5,587,013).** Ikegaya discloses a flat free-standing diamond film is produced by growing diamond layers on a non-diamond substrate and eliminating the substrate (col.2 lines 17-21) by dissolving the substrate (col.7 lines 27-28). The diamond thin films can be grown by CVD (col.8 lines 8-18) and thicknesses are 400 microns (col.12 line 11). In one embodiment, a single diamond film can have a thickness of 30 microns (col.13 line 19). However, the reference fails to teach a diamond thin film.

It is first noted that the applicant defines thin film as thicknesses up to 10 microns (see paragraph 37 of specification). The reference teaches diamond thicknesses of 30 microns. To vary such well known deposition parameters such as film thickness is conventional in the vapor deposition art depending on the desired use of the final product and hence, would have been obvious to vary.

The limitations of claims 2-15 have been addressed above.

Art Unit: 1762

Any inquiry concerning this communication or earlier communications from the examiner should be directed to B. Chen whose telephone number is (571) 272-1417. The examiner can normally be reached on 7:30am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Bc  
12/2/05



**BRET CHEN**  
**PRIMARY EXAMINER**